Name: _____ **Electronics**

Directions:
Evaluate the student by checking the appropriate number to indicate the degree of competency. The rating for each task should reflect **employability readiness** rather than the grades given in class.

Rating Scale:
- **0** **No Exposure** – no experience or knowledge in this area
- **1** **Not Mastered** – requires instruction and close supervision
- **2** **Requires Supervision** – can perform job completely with limited supervision
- **3** **Mastered** – can work independently with no supervision

NOTES:
* = Core competencies (essential for the first day on the job).

0	1	2	3	A. **Appreciate and apply all personal and workplace safety procedures**	EIA/EIF
				*1. Identify various types, purposes, and operation of fire extinguishers	
				*2. Identify electrical hazards	
				*3. Identify and practice shop safety, including eye protection and environmental hazards	A.02
				*4. Identify and practice safe soldering methods	A.05
				*5. Demonstrate safe and proper use of hand tools	A.04
				*6. Identify hazard of RF radiation devices	
				*7. Demonstrate safe and proper use of AC line-operated equipment (e.g., isolation transformers, grounding, leakage current testing, GFI)	C.06, C.07
				Other:	

0	1	2	3	B. **Test fundamental electronic circuits and devices**	A.06, B.01, B.04
				*1. Evaluate and test sources of DC and AC signals and power	B.05, C.01-C.05, C.15
				*2. Apply Ohm's law	B.03, B.24, C.15
				*3. Evaluate and test DC series circuits	B.05, B.08-B.10
				*4. Evaluate and test DC parallel circuits	B.05, B.11, B.12, B.13
				*5. Evaluate and test DC series-parallel circuits	B.05, B.14-B.16, B.18-B.20
				*6. Evaluate and test bridge circuits	B.14-B.17
				*7. Evaluate and test magnetic and electromagnetic devices	B.05, B.06, C.15
				*8. Evaluate and test transformers	C.06, C.14-C.17
				*9. Evaluate and test capacitors	B.07, C.08-C.10
				*10. Evaluate and test inductors	B.07, B.08, C.11-C.13
				*11. Evaluate and test resistive devices	A.10

				*12. Evaluate and test basic circuit controls (e.g., switches, fuses, circuit breakers)	
				*13. Evaluate and test AC series R/L/C (resistance-inductance-capacitance) and filter circuits	C.21-C.29
				*14. Evaluate and test AC parallel R/L/C and filter circuits	B.13, C.21-C.29
				*15. Evaluate and test time constants	B.21-B.23
				Other:	

0	1	2	3	**C. Test and repair power supplies consistent with industry and safety standards**	**EIA/EIF**
				*1. Identify safety hazards associated with power supplies	
				*2. Evaluate and test batteries	B.02
				*3. Test and repair linear power supplies	D.06-D.08, E.07-E.09
				*4. Test and repair linear regulator circuits	D.06-D.08, E.16-E.17 (excluding switching power supplies)
				Other:	

0	1	2	3	**D. Test semiconductor devices consistent with industry and safety standards**	**EIA/EIF**
				*1. Evaluate and test diodes	D.01, D.02, D.05-D.08
				*2. Evaluate and test transistors (e.g., BJTs and FETs)	D.03, D.04
				*3. Evaluate and test thyristors (e.g., SCRs, TRIACs, and DIACs)	D.15-D.17
				*4. Select semiconductors using specification sheets and substitution guides	A.07, partial A.09, E.10-E.12
				*5. Demonstrate proper techniques for handling and replacing semiconductors	
				Other:	

0	1	2	3	**E. Test and repair amplifiers consistent with industry and safety standards**	**EIA/EIF**
				*1. Test and repair transistor switching circuit	
				*2. Test and repair bipolar transistor amplifier circuits	D.12-D.14, E.13-E.15
				*3. Test and repair FET amplifier circuits	D.12-D.14
				*4. Test and repair operational amplifier circuit	E.10-E.12
				*5. Test and repair multistage amplifiers	E.01-E.03, F.03, F.04
				Other:	

0	1	2	3	**F. Test and repair frequency generation equipment consistent with industry and safety standards**	**EIA/EIF**
				*1. Test and repair oscillators	E.20, E.21

				*2. Test and repair pulse generators and multivibrators	E.20, E.21, F.17-F.19
				Other:	

0	1	2	3	G. Operate test equipment	EIA/EIF
				*1. Measure voltage, time, and frequency using an oscilloscope	Partial A.09, C.02, C.03
				*2. Measure voltage, current, and resistance using multimeters (VOM, EVM, DVM)	
				*3. Operate signal generators: audio, RF, function	
				Other:	

0	1	2	3	H. Test common optical devices	EIA/EIF
				*1. Test common optical devices (e.g., photodetectors, emitters, optical isolators, and LEDs)	D.O9
				Other:	

0	1	2	3	I. Test and interpret digital logic system components	EIA/EIF
				*1. Identify and convert number systems and codes (e.g., binary, hex, ASCII and BCD)	
				*2. Test the operation of basic logic gates	F.01, F.05-F.07
				*3. Interpret truth tables of logic circuits	F.05-F.07
				*4. Test operation of clock and timing circuits	
				*5. Test combinational logic circuits for a given application	D.09-D.11, F.08-F.10, F.22, F.23, F.26, F.27, F.30-F.33
				*6. Test counter and controller circuits for sequential logic applications	F.11-F.16
				*7. Interpret information on digital data sheets	A.07, partial A.09
				*8. Test the operation of A/D/ and D/A converters	F.24,F.25
				Other:	

0	1	2	3	J. Test microprocessors and microcontrollers	EIA/EIF
				*1. Evaluate and test microprocessor bus signals	G.03-G.05
				*2. Evaluate and test IO devices	G.01-G.02
				*3. Evaluate and test memory devices	G.06-G.07
				*4. Evaluate and test dedicated microcontrollers	
				Other:	

0	1	2	3	K. Construct circuits consistent with industry and safety standards	EIA/EIF
				*1. Construct multistage circuits according to schematic diagrams	A.07, A.08

				*2. Desolder defective components and solder replacement components	A.05
				Other:	

0	1	2	3	L. **Troubleshoot electronic systems**	**EIA/EIF**
				*1. Perform logical steps of troubleshooting on electronic systems	A.03, A.12
				Other:	

0	1	2	3	M. **Test and repair electronic telecommunication systems**	**EIA/EIF**
				1. Test and repair phase-locked loop circuits	C.31, C.32
				2. Test and repair IF (intermediate frequency) circuits	E.04-E.06
				3. Test and repair RF (radio frequency) circuits	E.24-E.26
				4. Test and repair modulation systems	E.27, E.28
				5. Test and repair active filter circuits	E.18
				6. Test and repair transmitters	
				7. Test and repair receivers	
				8. Test and align antennas	
				9. Test and repair telephone systems	
				10. Test and repair personal communication systems (PCS)	
				11. Install, test, and repair satellite receivers	
				12. Operate frequency counters	
				Other:	

0	1	2	3	N. **Test and repair audio and video systems**	**EIA/EIF**
				1. Test and repair digital audio record/play systems	
				2. Test and repair analog audio record/play systems	
				3. Test and repair digital video record/play systems	
				4. Test and repair analog video record/play systems	
				5. Test and repair digital video display systems	
				6. Test and repair analog video display systems	
				7. Test and repair audio reproduction systems	
				8. Test and repair video reproduction systems	

				9. Test and repair interactive video systems	
				10. Test and repair interactive audio systems	
				Other:	

0	1	2	3	**O. Install and maintain computer network systems**	**EIA/EIF**
				1. Test and repair transmitters and receivers (photonic and electronic)	E.22, E.23
				2. Test and repair transmission mediums	
				3. Install, test, and repair physical layer of a network	
				4. Install protocol stack	
				5. Install network software	
				Other:	

0	1	2	3	**P. Install and maintain computer software and hardware components**	**EIA/EIF**
				1. Test and repair microcomputers to board level	H.01, H.02
				2. Test computer component functions (e.g., microprocessor, memory, I/O, etc.)	
				3. Install and configure hardware components (e.g., drives, cards, memory expansion, motherboard, disk interfaces)	
				4. Install and configure operating system software	H.04
				5. Install and configure supporting software	H.04
				6. Test and maintain computer peripherals	H.03, H.05
				Other:	

0	1	2	3	**Q. Install, test, and repair industrial electronic systems**	**EIA/EIF**
				1. Create simple ladder logic diagrams/programs	
				2. Install and configure programmable logic controllers	
				3. Test and repair motor control systems (e.g., starters and control wiring, overcurrent protection)	
				4. Test and repair variable-speed motor drives	
				5. Identify and test sensors	
				6. Test and repair solid-state power controls	
				7. Test, repair, and maintain computer-controlled systems (e.g., CNC and robotics)	
				Other:	

0	1	2	3	R. Demonstrate leadership skills in the classroom, industry, and society **	EIA/EIF
				1. Determine an understanding of VICA, its structure, and activities	
				2. Demonstrate an understanding of one's personal values	
				3. Perform tasks related to effective personal management skills	
				4. Demonstrate interpersonal skills	
				5. Demonstrate etiquette and courtesy	
				6. Demonstrate effectiveness in oral and written communication	
				7. Develop and maintain a code of professional ethics	
				8. Maintain a good professional appearance	
				9. Perform tasks related to securing and terminating employment	
				10. Perform basic parliamentary procedures in a group meeting	
				Other:	

NOTE: These competencies are addressed in the Missouri SkillsUSA-VICA Curriculum Guide lessons